

EXHIBIT 1

[Redacted]

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10 **UNITED STATES DISTRICT COURT**
NORTHERN DISTRICT OF CALIFORNIA
11 **OAKLAND DIVISION**

13 IN RE ABBOTT LABS NORVIR
ANTITRUST LITIGATION

) **Case No. C-04-1511 CW**
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15) **REBUTTAL EXPERT REPORT OF JOEL**
16) **W. HAY, PH.D.**
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17) **HIGHLY CONFIDENTIAL**
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1 not an economic term of art with which I am familiar. However, what is certain is that Abbott's
2 pricing conduct bears no relation to the types of exclusionary conduct that Prof. Greer discusses.

3 ***1. Abbott has not engaged in tying, nor is the challenged Abbott pricing structure***
4 ***economically equivalent to tying.***

5 13. Abbott has not engaged in tying, and the challenged pricing conduct is in no way
6 equivalent to tying. Tying occurs when a firm sells a product (say product A), referred to as the
7 tying good, conditional on the customer also buying another product (product B), which is referred
8 to as the tied good. That is, a firm engaging in a tie does not sell the tying good (product A)
9 independently of the tied good (product B). Kaletra combines ritonavir (product A, the PI booster)
10 and lopinavir (product B, the boosted PI). But ritonavir (product A) is still available in the market
11 and is sold and purchased independent of lopinavir (product B). That drug is Norvir. Because
12 Abbott sells Norvir as a stand-alone separate product, Abbott has not conditioned the purchase of
13 lopinavir on the purchase of ritonavir. If two products can be purchased separately and the purchase
14 of one product is not conditioned on the purchase of another, then there is, by definition, no tie. In
15 fact, plaintiffs' do not allege that Abbott has engaged in tying.

16 14. Prof. Greer argues that although Abbott has not engaged in tying, Abbott's pricing "is
17 nevertheless exclusionary because it has the same economic leverage as a tie-in."¹⁶ However, basic
18 facts show that Abbott's pricing structure is not equivalent to a tie. A tie would eliminate Norvir as
19 a booster to competing PIs, and would have made Kaletra the only boosted PI regimen. Thus, if
20 Abbott's pricing structure were economically equivalent to a tie, no patients would be prescribed
21 Norvir. A tie would have eliminated all rival boosted PI regimens from the market, including
22 Reyataz and Lexiva (which instead have gained market share since the Norvir price increase.)

23 15. These implications from a tying arrangement are wholly inconsistent with actual
24 market facts. Sales of Norvir, rather than being eliminated or significantly reduced, have increased
25 significantly since the Norvir pricing revision. In fact, prescriptions of Norvir more than doubled
26 between December 2003 and September 2007 (from 23,953 prescriptions to 63,805 prescriptions).¹⁷

27 ¹⁶ Greer Report, p. 44.

28 ¹⁷ Source: NOR 00429455 - NOR 00429463, hereinafter "TRX Data."

Also in contrast to a tying arrangement, there are more sales of the stand alone product, Norvir, than of the bundled product, Kaletra. In September 2007, for instance, there were 63,805 prescriptions of Norvir, compared to 51,463 prescriptions of Kaletra.¹⁸ The fact that 55% of patients that are prescribed ritonavir in some form purchase ritonavir separate from lopinavir (*i.e.* purchase Norvir instead of Kaletra), indicates that Abbott's pricing structure is not equivalent to a tying arrangement nor does it in any way approximate a tying arrangement.

16. In fact, the entire plaintiffs' class, which is defined as "persons or entities ... who purchased or paid for ... Norvir as a booster to other protease inhibitors," purchases ritonavir independent of lopinavir (*i.e.* purchases Norvir rather than Kaletra).¹⁹ Thus, Prof. Greer's claim that Abbott's pricing structure is equivalent to a tie is inconceivable given that not a single class member has been prescribed ritonavir and lopinavir as a bundle.

2. Abbott does not offer bundled discounts, nor is the challenged pricing structure economically equivalent to bundled discounts.

17. Prof. Greer also claims that, although Abbott's pricing structure does not "fit" "exactly" into the category of bundled discounts, it is a "first cousin" to bundled discounts.²⁰ Bundled discounts occur when a firm gives discounts on one product (say product A) contingent on the customer also buying a second product (product B) from the firm. In the case of Abbott, a bundled discount would require that Abbott provide a significant discount on Norvir contingent on the patient also purchasing lopinavir. However, Abbott does not offer such discounts on Norvir for patients that purchase lopinavir. Nor does it sell lopinavir as a stand-alone PI. Rather, Abbott's pricing structure, according to Prof. Greer, is a *high* price of Norvir and a "too low" price of Kaletra.

18. Moreover, bundled discounts can only be anticompetitive if conditional discounts on product A are large enough such that the implicit price on product B is predatory (*i.e.* below cost)

¹⁸ Source: TRX Data.

¹⁹ *In Re Abbott Laboratories Antitrust Litigation*, Plaintiffs' Notice of Motion and Motion for Class Certification Pursuant to Rule 23 of the Federal Rules of Civil Procedure; Memorandum in Support Thereof ("Plaintiffs' Motion for Class Certification"), p. 1.

²⁰ Greer Report, p. 43.

when the entire conditional discount is attributed to product B. I understand that this necessary condition was described by the Court of Appeals for the Ninth Circuit in *Cascade Health Solutions*.²¹ The court stated that “[t]o prove that a bundled discount was exclusionary or predatory for the purposes of monopolization or attempted monopolization claim under § 2 of the Sherman Act, the plaintiff must establish that, after allocating the discount given by the defendant on the entire bundle of products to the competitive product or products, the defendant sold the competitive product or products below its average variable cost of producing them.”²² Consistent with this legal standard, economic theories of anticompetitive bundled discounts also require the implicit price of the competitive good to be below cost.²³ As discussed below in Section II.B, the implicit price of lopinavir is not below cost. Nor do plaintiffs or Prof. Greer claim that the implicit price of lopinavir is below cost.

3. Abbott has not engaged in conduct to “raise rivals’ costs,” nor is the challenged conduct economically equivalent to “raising rivals’ costs”

19. Prof. Greer also claims that Abbott’s pricing structure is a “first cousin” to “raising rivals’ costs.”²⁴ In particular, he argues that the Norvir pricing revision can be thought of as “if Abbott was raising the costs of its rivals in the boosted PI market” because the Norvir price increase led to an “increase in the prices of all boosted PI regimens except Kaletra.”²⁵ “Raising rivals’ cost” is an economic theory in which a firm takes actions for the purpose of increasing the cost of competitors. Such conduct is unprofitable in the short-run but can be a profitable exclusionary strategy if it places competitors at a significant cost disadvantage and thereby drives competitors out

²¹ *Cascade Health Solutions (f/k/a McKenzie Williamette Hospital) v. PeaceHealth*, No. 05-35627.

²² *Id.* at 11233-34.

²³ See Barry Nalebuff, *Bundling as an Entry Barrier*, 119 Q. J. ECON. 159 (2004).

²⁴ Greer Report, p. 43.

²⁵ Greer Report, p. 49. Greer claims that the Norvir price increase is “not exactly a case of raising rivals’ costs because Abbott’s rivals are not buying Norvir from Abbott to combine their boosted PIs in co-formulations...” Greer Report, pp. 43-44.

1 its patent protection. The classic market characteristics associated with economic theories of
2 predatory pricing simply do not apply to the HIV drug market.

3 **C. Prof. Greer's monopoly leveraging theory makes no economic sense**

4 ***1. Prof. Greer provides no theory why Abbott would profit from shifting sales to***
5 ***Kaletra when it supposedly sells Norvir to every patient taking a boosted PI.***

6 36. Economics shows that, in most circumstances, leveraging is unlikely to increase the
7 profits of a monopolist because there is a single potential "monopoly" profit in a vertical chain of
8 production. Therefore, a monopolist could maximize profits solely by charging a monopoly price
9 for the good on which it has market power. A monopolist could not "collect twice" for its market
10 power by using a vertical restraint to leverage its monopoly power into other markets. For these
11 reasons a monopolist manufacturer typically would prefer other vertical stages of the production and
12 distribution process to be competitive.

13 37. In the case of Norvir, accepting for the sake of argument that Norvir has a monopoly
14 over a so-called "Boosted Market," Abbott would be able to collect a monopoly profit on sales of
15 Norvir and would benefit from a competitive market for boosted PIs. The more competitive is the
16 "Boosted Market," and the greater the sales of boosted PIs, the greater Abbott's sales of Norvir
17 would be. This does not mean that monopoly leveraging is *never* profitable. In theory, leveraging
18 can be a profitable exclusionary strategy under very specific circumstances.⁴⁶

19 38. But Prof. Greer provides no such theory why Abbott would find it profitable to drive
20 boosted PI manufacturers out of the market. Prof. Greer's simplistic theory seems to be that Abbott
21 would profit from additional Kaletra sales. However, such an exclusionary strategy would cause
22 Abbott to lose sales of Norvir. In fact, according to Prof. Greer's own theory, Abbott sells Norvir to
23 every patient taking a boosted PI. Therefore, Abbott would lose a sale of Norvir for every patient
24 that is "forced" to switch from a boosted PI regimen to an alternative regimen. Even if some of
25 these patients switch to Kaletra, there would be a high cost to Abbott of adopting such a strategy.

26 _____
27 ⁴⁶ Several theories of anticompetitive leveraging have been proposed, and Prof. Greer cites three of
28 these theories. However, as I discuss below, these theories do not apply to Abbott's pricing. See
infra notes 48, 50, and 51.

For instance, if a patient taking a rival's PI boosted by Norvir does not switch to Kaletra, Abbott would lose the sale of Norvir, but not gain a sale of Kaletra, by driving the PI rival out of the market. The economic evidence indicates that, even if (counterfactually) Abbott's pricing revision did shift sales away from rival PIs boosted by Norvir, many of these patients would switch to NNRTI and unboosted PI regimens because these other regimens are close substitutes to boosted PI regimens (see Section III.B). Thus, the exclusionary strategy hypothesized by Prof. Greer seems to make no economic sense because it entails significant losses, but little or no gains, for Abbott. Prof. Greer provides no reasonable explanation why such a leveraging strategy would be profitable.

2. Prof. Greer cites several anticompetitive theories of leveraging that do not fit the facts of this case.

39. Rather than explaining the economic logic behind his proposed leveraging strategy, Prof. Greer cites several theories of how tying and bundled discounts can profitably leverage a firms' market power into another market.⁴⁷ However, these theories are completely inapplicable to Abbott. First of all, as I describe above, Abbott has not engaged in tying or bundled discounts. Nor is Abbott's pricing structure in any way equivalent to a tie because all class members are prescribed ritonavir (Norvir) without also being prescribed lopinavir. Abbott's pricing structure is also not equivalent to a bundled discount because it does not offer discounts on Norvir contingent on a patient purchasing lopinavir, and because the implicit price of lopinavir is not below cost. Second, the theories cited by Prof. Greer require that tying and bundled discounts drive rival manufacturers out of the market. But Abbott's pricing structure has not driven any rivals out of the so-called "Boosted Market" nor impeded their sales growth. Moreover, as I discuss below, the anticompetitive theories of tying and bundled discounts cited by Prof. Greer are wholly inapplicable to Norvir and Kaletra for other significant reasons.

40. One anticompetitive theory of leveraging cited by Prof. Greer is Carlton and Waldman (2002).⁴⁸ In the Carlton and Waldman theory, tying is used by a monopolist to drive

⁴⁷ Greer Report, p. 40.

⁴⁸ Dennis W. Carlton and Michael Waldman, *The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries*, 33 RAND J. OF ECON. 194 (2002).

1 competing tied good suppliers out of the market. The potential anticompetitive gains to a
2 monopolist of using a tie come from protecting the tying good monopoly from competition.
3 Specifically, Carlton and Waldman assume that competing tied good suppliers are future potential
4 tying good entrants, and therefore the value of the tie is in preventing potential entry of competing
5 tied good suppliers into the tying good market. A tie that drives competing tied good suppliers out
6 of the market therefore may anticompetitively protect a monopoly in the tying good. Carlton and
7 Waldman claim these conditions for an anticompetitive effect from tying were fulfilled in
8 *Microsoft*.⁴⁹ The tying good in *Microsoft* was the Windows operating system on which Microsoft
9 possessed significant market power, while the tied good was Microsoft's browser software, Internet
10 Explorer. The Department of Justice alleged that Microsoft feared that if the competing Netscape
11 browser software, Navigator, became the accepted dominant browser, software applications would
12 be written directly for Navigator, and thereby would become an alternative personal computer
13 system platform. But this theory has nothing to do with Abbott's pricing of Norvir. Selling boosted
14 PIs gives rivals no advantage in terms of their PIs becoming PI *boosters* and competing with Norvir
15 in the claimed "Booster Market." The Carlton and Waldman *Microsoft* theory of monopoly
16 leveraging is therefore simply not applicable to Abbott.

17 41. Another anticompetitive theory of leveraging cited by Prof. Greer is Whinston
18 (1990).⁵⁰ In the Whinston model, tying is used to drive competing tied good suppliers out of the
19 market by forcing them below minimum efficient scale. This is profitable not because it allows the
20 monopolist to sell the tied good to its customers at monopoly prices. The monopolist cannot
21 anticompetitively profit by selling the tied good at supracompetitive prices to its own customers
22 because those customers receive an offsetting discount in the price of the tying good, and therefore,
23 the total package price paid by the tying firm's buyers does not increase. The point of monopoly
24 leveraging in the Whinston model is to sell the tied good at monopoly prices to customers that are
25 *not* purchasing the tying good from the monopolist. For example, if Kodak could drive competing

26 ⁴⁹ *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30 (D.D.C. 2000), *rev'd in part, aff'd in part*, 253
27 F.3d 34 (D.C. Cir. 2001), *cert. denied*, 534 U.S. 952 (2001).

28 ⁵⁰ Michael D. Whinston, *Tying, Foreclosure, and Exclusion*, 80 AMER. ECON. REV. 837 (1990).

1 service providers out of business, Kodak could supply high-price service to users of copiers other
 2 than Kodak. But the Whinston theory also does not apply to Abbott's pricing of Norvir. The
 3 application of the Whinston theory to Abbott would be that Abbott has an incentive to drive boosted
 4 PI manufacturers out of the market so that it can sell lopinavir to patients that are *not* prescribed
 5 ritonavir. That is, the theory would require that tying would give Abbott the ability to sell lopinavir
 6 as an *unboosted* PI. But Abbott does not sell lopinavir as a stand-alone unboosted PI. Nor is this
 7 theory consistent with Prof. Greer's claims of Abbott monopolizing the so-called "Boosted Market."
 8 The Whinston theory would imply that Abbott would be attempting to monopolize an "*UnBoosted*
 9 *Market.*"

10 42. The last theory cited by Prof. Greer is Nalebuff (2004).⁵¹ The Nalebuff theory
 11 pertains to bundled discounts. In particular, according to the Nalebuff theory, a manufacturer can
 12 offer a large "bundled discount" on its monopoly product (product A) conditional on consumers
 13 purchasing the competitive product (product B), so that the implicit price of B is below cost when
 14 the entire discount is applied to B. As a result, competing manufacturers of B will not be able to
 15 profitably match the discount and will be foreclosed from the market. However, this theory of
 16 monopoly leveraging also does not fit Abbott's pricing. As discussed above, Abbott does not offer
 17 bundled discounts. Nor is Abbott's pricing structure equivalent to a bundled discount. Moreover,
 18 the implicit price of lopinavir is not predatory – *i.e.* below cost – which is a primary element of the
 19 Nalebuff model.

20 43. In sum, the theories of anticompetitive leveraging cited by Prof. Greer are entirely
 21 inapplicable to Abbott's pricing structure.

22 ***3. Plaintiffs' theory of leveraging makes no economic sense to the extent that***
 23 ***Abbott has patents covering both the claimed "Booster Market" and "Boosted***
 24 ***Market."***

25 44. Plaintiffs' theory of monopoly leveraging makes no economic sense for another
 26 important reason. In particular, I understand that Abbott has patents on both Norvir and on the use
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28 ⁵¹ Barry Nalebuff, *Bundling as an Entry Barrier*, 119 Q. J. ECON. 159 (2004).

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1 of Norvir as a booster to other PIs. Plaintiffs and Prof. Greer claim that Abbott has a lawful
 2 monopoly in the so-called "Booster Market" by virtue of its Norvir patents and has leveraged this
 3 monopoly into a separate, competitive "Boosted Market." However, from an economic perspective,
 4 plaintiff's theory of monopoly leveraging makes no sense to the extent that Abbott has patents
 5 covering both the claimed "Booster Market" and "Boosted Market." Monopoly leveraging is the
 6 extension of monopoly power from a market in which the firm has market power into a competitive
 7 market in which the firm is not protected by patents. But if Abbott's patents give Abbott legal rights
 8 to the use of Norvir as a booster to other PIs, then according to plaintiffs' and Prof. Greer's own
 9 definitions of the relevant markets, Abbott's patents would cover the so-called "Boosted Market."
 10 Accordingly, there could be no monopoly leveraging from the "Booster Market" to the "Boosted
 11 Market."

12 **D. Prof. Greer challenges other legitimate business conduct**

13 45. Prof. Greer also challenges other Abbott conduct. First, he claims that Abbott's
 14 requirement that competitors obtain licenses promote boosting properties of Norvir on their PIs
 15 "raises rivals' costs." In particular, he claims that [REDACTED] are part
 16 of Abbott's attempt to monopolize the "Boosted Market."⁵² Second, he claims that Abbott's refusal
 17 to license the co-packaging and co-formulation to other PI manufacturers is also part of Abbott's
 18 attempted monopolization of the "Boosted Market."⁵³ Third, he claims that Abbott's decision not to
 19 introduce Norvir-Meltrex, while offering Kaletra-Meltrex, is also part of Abbott's strategy of
 20 disadvantaging PI rivals.⁵⁴

21 ***1. Requiring that competitors obtain licenses in order to promote the boosting***
 22 ***properties of Norvir.***

23 46. Prof. Greer claims that Abbott's requirement that competitors obtain licenses to
 24 promote boosting properties of Norvir is part of Abbott's attempt to monopolize the so-called
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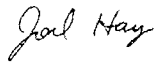
26 ⁵² Greer Report, p. 52.

27 ⁵³ Greer Report, p. 52.

28 ⁵⁴ Greer Report, p. 53.

1 Sales of Norvir comprised only 0.1% of all U.S. drug sales in 2004.²⁹⁴ Since drugs only represented
 2 10.0% of health care expenditures that same year, even a 400% increase in the price of Norvir would
 3 add only 0.008% to the average premium increase for a third-party payor in 2005.²⁹⁵ Given that
 4 third-party payors raised their premiums by an average of 9.2% between 2004 and 2005, this 0.008%
 5 increase in premiums is negligible in terms of impacting the competitiveness of a third-party
 6 payor.²⁹⁶ Accordingly, third-party payors also are unlikely to have been affected by the Norvir price
 7 increase when such pass-through is taken into account.

8 201. I declare under penalty of perjury that the foregoing is true and correct.

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October 31, 2007

11 Joel W. Hay, Ph.D.

Date

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25 ²⁹⁴ Norvir sales from Drug Topics (www.drugtopics.com); U.S. drug sales from Health Affairs
 26 (www.healthaffairs.org).

27 ²⁹⁵ Percentage of health care expenditures accounted for by drugs from www.healthaffairs.org.

28 ²⁹⁶ Increase in premiums from KFF Survey, p. 17.